



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/780,488	02/17/2004	Steven G. Goebel	GP-304183	1553
7590	07/01/2008		EXAMINER	
CARY W. BROOKS General Motors Corporation Legal Staff, Mail Code 482-C23-B21 P.O. Box 300 Detroit, MI 48265-3000			HODGE, ROBERT W	
			ART UNIT	PAPER NUMBER
			1795	
			MAIL DATE	DELIVERY MODE
			07/01/2008	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/780,488	GOEBEL, STEVEN G.	
	<b>Examiner</b>	<b>Art Unit</b>	
	ROBERT HODGE	1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 14 April 2008.

2a) This action is **FINAL**.                    2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-29 is/are pending in the application.

4a) Of the above claim(s) 1-17 is/are withdrawn from consideration.

5) Claim(s) \_\_\_\_\_ is/are allowed.

6) Claim(s) 18-29 is/are rejected.

7) Claim(s) \_\_\_\_\_ is/are objected to.

8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All    b) Some \* c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) Notice of References Cited (PTO-892)

2) Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.

4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.

5) Notice of Informal Patent Application

6) Other: \_\_\_\_\_.

## DETAILED ACTION

### ***Response to Arguments***

Applicant's arguments filed 4/14/08 have been fully considered but they are not persuasive. Applicant's arguments are not commensurate in scope with instant claim 18. The recitation that applicants are arguing states "an anode purge flowpath configured to selectively couple said recirculation loop to said anode". There is nothing in the claim about any supposed direction that fluids are supposed to flow. The only structure that must be present to read on the above recitation is a conduit connecting the anode side to the cathode recirculation loop with a valve or some sort of other means that will open and close the conduit path. It should be noted that Margiott does not disclose valve 64 as being a one-way valve and in fact in column 6, lines 16-24, Margiott discusses that valve 64 can be opened or closed to either allow or prohibit the transfer of hydrogen fuel or any fluid between the anode and cathode flow paths (i.e. the conduit can be used for transfer in both directions). Therefore Margiott recognizes that the flow path can be used in the same manor as applicants disclose in the instant specification but do not recite in the instant claims. Therefore the rejections will be maintained.

### ***Claim Rejections - 35 USC § 102***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 18-24 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,984,464 hereinafter Margiott.

Regarding claim 18, in figure 1 Margiott teaches a method of operating a fuel cell system 10 comprising configuring the fuel cell system 10 to include at least one fuel cell 12 comprising an anode 14, a cathode 16 and a membrane 18 disposed between the anode and cathode (column 4, line 53), an anode flowpath 24, configured to couple the anode to a fuel source 54, a cathode flowpath 38 configured to couple the cathode to an oxygen source 58, said cathode flowpath including a recirculation loop 70, a means for selectively introducing fuel into said recirculation loop (column 6, lines 25-48), means for selectively reacting fuel with oxygen in said recirculation loop (as defined by applicants said means for reacting fuel with oxygen in the recirculation loop can be the cathode and since the cathode 16 of Margiott is part of the recirculation loop it reads on said recitation) and anode purge flow path configured to selectively couple said recirculation loop to said anode (there is a conduit connecting 24 to 38 (not labeled) that reads on the anode purge flowpath as recited in claim 18). Margiott further teaches that at least two modes of operation may be selected, the first being starting up the system (column 3, lines 47-53) and the second being shutting down the system (column 7, lines 47 et seq.), that fluid is recycled in the cathode flowpath (column 5, lines 19 et seq.), that fuel introduced through said fuel introduction means is reacted with oxygen in the recycled fuel until a voltage measured across said fuel cell reaches a predetermined level that is commensurate with a substantial consumption of said oxygen in said recirculation loop and then the reaction is discontinued by disabling at least one of the selective reacting

means (column 9, lines 7 et seq.) and fluid is introduced into at least one of said anode or said cathode such that any fluid previously resident therein is substantially purged (column 9, lines 30 et seq.).

Regarding claim 19, Margiott teaches that the anode purge flowpath comprises a purge valve 64.

Regarding claim 20, Margiott teaches selecting said first mode of operation (column 3, lines 47-53)

Regarding claim 21, Margiott teaches filling said anode with fuel after said reacting has been discontinued (column 9, lines 30 et seq.).

Regarding claim 22, Margiott teaches flowing air through said cathode while the anode is filled with fuel (i.e. normal operation of the fuel cell) (column 5, lines 19 et seq.).

Regarding claim 23, Margiott teaches that the cathode recirculation loop may be disabled (column 7, lines 27-37).

Regarding claim 24, Margiott teaches selecting said second mode of operation (column 7, lines 47 et seq.).

### ***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 25-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Margiott in view of U.S. Pre-Grant Publication No. 2002/0076583 hereinafter Reiser.

Margiott as discussed above is incorporated herein.

Regarding claim 25, Margiott further teaches introducing a substantially oxygen-depleted fluid into the anode (i.e. a fuel stream containing hydrogen) (column 5, lines 58 et seq.)

Margiott does not teach that the fluid comes from the cathode flowpath.

In figure 1 Reiser teaches a fuel cell system 100 wherein a conduit 182 is provided from the cathode flow path 124 to the anode flow path 130 to provide air to the anode from the oxygen source (paragraph [0014]).

At the time of the invention it would have been obvious to a person having ordinary skill in the art to provide a conduit connecting the cathode flow path to the anode flowpath of Margiott as taught by Reiser in order to displace the hydrogen quickly thereby reducing the time that platinum and carbon corrosion will occur thus increasing the overall life of the fuel cell.

Regarding claim 26, Margiott teaches a valve 52 in the anode flowpath that can be selectively opened or closed, thus decoupling the anode from the fuel source (column 5, lines 58-62).

Regarding claim 27, Margiott teaches valves 71 and 56 in the cathode flowpath that can selectively be opened or closed thus stopping fluid flow within the cathode flowpath (column 5, line 64 - column 6, line 7, and column 7, lines 31 et seq.).

Regarding claims 28 and 29, Margiott as modified by Reiser as discussed above is incorporated herein.

***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ROBERT HODGE whose telephone number is (571)272-2097. The examiner can normally be reached on 8:00am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/R. H./  
Examiner, Art Unit 1795

/Jonathan Crepeau/  
Primary Examiner, Art Unit 1795